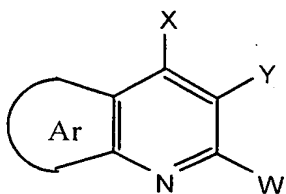


## WHAT IS CLAIMED:

1. A compound of the formula:



5 or pharmaceutically acceptable non-toxic salts or pharmaceutically acceptable solvates thereof wherein:

Y is

hydrogen, straight or branched chain lower alkyl having 1-6 carbon atoms, halogen, amino, hydroxyl, or lower alkoxy having 1-6 carbon atoms; or

10 Y is

straight or branched chain lower alkyl having 1-6 carbon atoms or lower alkoxy having 1-6 carbon atoms each of which is substituted on the alkyl chain with an amino or mono or dialkylamino group where each alkyl is independently lower alkyl;

15 W is

phenyl, thienyl, or pyridyl, each of which may be mono or disubstituted with halogen, cyano, trifluoromethyl, trifluoromethoxy, hydroxy, straight or branched chain lower alkyl having 1-6 carbon atoms, straight or branched chain lower alkoxy having 1-6 carbon atoms, amino, or mono or dialkylamino where each alkyl is straight or branched chain lower alkyl having 1-6 carbon atoms; or

20 W is

straight or branched chain lower alkyl having 1-6 carbon atoms or cycloalkyl containing 5 to 8 carbon atoms, or

25 phenyl(C<sub>1</sub>-C<sub>6</sub>)alkyl, thienyl(C<sub>1</sub>-C<sub>6</sub>)alkyl, or pyridyl(C<sub>1</sub>-C<sub>6</sub>)alkyl, where the aromatic portion of each is optionally mono or disubstituted with halogen, cyano, trifluoromethyl, trifluoromethoxy, hydroxy, straight or branched chain lower alkyl having

1-6 carbon atoms, straight or branched chain lower alkoxy having 1-6 carbon atoms, amino, or mono or dialkylamino where each alkyl is straight or branched chain lower alkyl having 1-6 carbon atoms; or

W is

5 piperidinyl, morpholinyl, thiomorpholinyl, pyrrolidinyl, piperazinyl, homopiperazinyl, azabicyclo[3.2.2]nonanyl, isoindolinyl, each of which is unsubstituted, or mono or disubstituted with alkyl or aryl groups, or fused to an aromatic ring; or

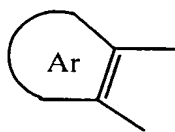
W is

10 nitrogen that is mono or disubstituted with hydrogen, straight or branched alkyl chain consisting of 1 to 8 carbons, cycloalkyl containing 3 to 8 carbon atoms, alkyl chain having 1 to 6 carbon atoms that is attached at any position to an aryl ring, alkyl chain having 1 to 6 carbon atoms that is attached at any position to a cycloalkyl containing 3 to 8 carbon atoms, phenyl, thienyl, pyridyl, imidazolyl, benzimidazolyl, or any heterocycle having aromatic character; or

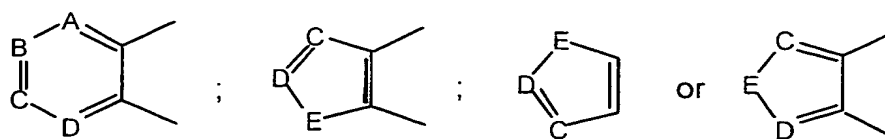
15 W is

oxygen that is substituted with

20 straight or branched alkyl chain having 1 to 8 carbon atoms, cycloalkyl having 3 to 8 carbon atoms, or phenyl mono or disubstituted with halogen, cyano, trifluoromethyl, trifluoromethoxy, hydroxy, straight or branched chain lower alkyl having 1-6 carbon atoms, amino, mono or dialkylamino where each alkyl is straight or branched chain lower alkyl having 1-6 carbon atoms, or straight or branched chain lower alkoxy having 1-6 carbon atoms;



represents



wherein:

A represents nitrogen or C-R<sub>1</sub>

B represents nitrogen or C-R<sub>2</sub>;

C represents nitrogen or C-R<sub>3</sub>;

D represents nitrogen or C-R<sub>4</sub> with the proviso that at least one but not more than 2 of A, B, C, and D are nitrogen; and

E represents oxygen, sulfur or N-R<sub>5</sub>;

R<sub>1</sub> through R<sub>4</sub> are the same or different and represent

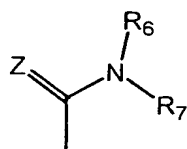
hydrogen, halogen, cyano, trifluoromethyl, trifluoromethoxy, hydroxy, straight or branched chain lower alkyl having 1-6 carbon atoms, amino, mono or dialkylamino where each alkyl is straight or branched chain lower alkyl having 1-6 carbon atoms, or straight or branched chain lower alkoxy having 1-6 carbon atoms:

R<sub>5</sub> is

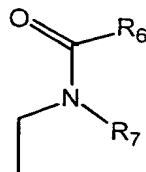
hydrogen or straight or branched chain lower alkyl having 1-6 carbon atoms; or

phenyl, thienyl, or pyridyl, each of which may be mono or disubstituted with halogen, cyano, trifluoromethyl, trifluoromethoxy, hydroxy, straight or branched chain lower alkyl having 1-6 carbon atoms, amino, mono or dialkylamino where each alkyl is straight or branched chain lower alkyl having 1-6 carbon atoms, or straight or branched chain lower alkoxy having 1-6 carbon atoms;

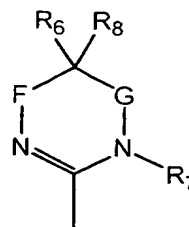
X is



or



or



where

F is carbonyl, methylene or ethylene;

G is methylene or a bond with the proviso that G is a  
bond when F is ethylene; and

Z is oxygen, sulfur, N-C≡N, or two hydrogen atoms;

R<sub>6</sub> is

phenyl, thienyl, or pyridyl, each of which may be mono or disubstituted with halogen, cyano, trifluoromethyl, trifluoromethoxy, hydroxy, straight or branched chain lower alkyl having 1-6 carbon atoms, amino, mono or dialkylamino where each alkyl is straight or branched chain lower alkyl having 1-6 carbon atoms, or straight or branched chain lower alkoxy having 1-6 carbon atoms; or

R<sub>6</sub> is

straight or branched alkyl having 1-8 carbons or cycloalkyl containing 3 to 8 carbon atoms each of which is optionally mono or disubstituted with an aromatic ring where each aromatic ring is optionally mono or disubstituted independently with halogen, cyano, trifluoromethyl, trifluoromethoxy, hydroxy, straight or branched chain lower alkyl having 1-6 carbon atoms, amino, mono or disubstituted amino where the substituent on nitrogen is either straight or branched chain alkyl having 1-6 carbon atoms or straight or branched chain alkoxy having 1-6 carbon atoms; or

R<sub>6</sub> is

cycloalkyl containing 5 to 8 carbon atoms wherein the cycloalkyl is fused to an aromatic ring at adjacent positions;

R<sub>7</sub> and R<sub>8</sub> are the same or different and represent

hydrogen or straight or branched chain lower alkyl having 1-6 carbon atoms; or

$R_6$  and  $R_7$  taken together form a 5, 6, 7 or 8 membered ring which is mono or disubstituted with an aryl group or contains a fused aryl ring as part of the 5,6, 7 or 8 membered ring described above with the proviso that  $R_6$  and  $R_7$  taken together do not form a ring when G is a methylene; or

5  $R_6$  and  $R_8$  taken together may form a 5, 6, 7 or 8 membered ring which is mono or disubstituted with an aryl group or contains a fused aryl ring as part of the 5,6, 7 or 8 membered ring.

10 2. A compound according to claim 1, which is N-[(S)-1-phenyl-1-propyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide.

3. A compound according to claim 1, which is N-[(S)-1-phenyl-1-propyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide.

15 4. A compound according to claim 1, which is N-((S)-1-phenyl-1-propyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

20 5. A compound according to claim 1, which is N-((S)-1-phenyl-1-propyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

6. A compound according to claim 1, which is N-(Diphenylmethyl)N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

25 7. A compound according to claim 1, which is N-(Diphenylmethyl)N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide.

8. A compound according to claim 1, which is N-((S)-1-phenyl-1-propyl)(2-phenylthieno[3,2-b]pyridin-4-yl)carboxamide.

30 9. A compound according to claim 1, which is selected from the group consisting of

N-[1-(phenyl)ethyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(phenyl)butyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(phenyl)pentyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(phenyl)hexyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(diphenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;  
 5 N-[1-(1,2-diphenyl)ethyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(1-phenyl-2-cyclohexyl)ethyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-indanyl-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

10 N-[1-(phenyl)isobutyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;  
 and

N-[1-(phenyl)2-methylbutyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

15 10. A compound according to claim 1, which is selected from the group consisting of

1-isobutyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

20 1-(2-methylphenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-(2-chlorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

25 1-methyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-propyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-butyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-cyclopentyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

30 1-pentyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-benzyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-cyclohexylmethyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone; and

1-isopropyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone.

11. A compound according to claim 1, which is selected from the group consisting of

N-[1-(phenyl)octyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

1-(2-methylbutyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

N-[1,3-(diphenyl)propyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1,4-(diphenyl)butyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-ethyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-isopropyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-butyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-isobutyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-cyclopentyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-pentyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide; and

N-benzyl-N-cyclohexyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

12. A compound according to claim 1, which is selected from the group consisting of

N,N-dibenzyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-1-methylpropyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-1-methylbutyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-4-methylbutyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-cyclopentylmethyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-hexyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-cyclohexylmethyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-benzyl-N-heptyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide; and

N-[1-(phenylcyclopentyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

13. A compound according to claim 1, which is selected from the group consisting of

N-[1-(phenylcyclohexyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

5 N-[1-(1-phenyl-2cyclopentyl)ethyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(1,3-diphenyl)propyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

10 N-[1-(1,4-diphenyl)butyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

1-phenyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-cyclohexyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

15 1-cyclopentylmethyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-hexyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-(2-fluorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone; and

20 1-(2-trifluoromethylphenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone.

14. A compound according to claim 1, which is selected from the group consisting of

25 1-(3-methylphenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-(4-methylphenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

30 1-(4-fluorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-cycloheptyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;



1-(3-chlorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

1-(4-chlorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

5 6,7-dimethoxy(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

6,7-dimethoxy-1-methyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone;

6,7-dimethoxy-1-phenyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone; and

10 6,7-dimethoxy-3-methyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)ketone.

15 15. A compound according to claim 1, which is selected from the group consisting of

2-[6,7-dimethoxy-2-(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[2,3-b]pyridin-4-yl)] ethanenitrile ketone;

N-[1-(4-bromophenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

20 N-[1-(4-methylphenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-methylphenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-fluorophenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-fluorophenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-methoxyphenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

25 N-[1-(3-methoxyphenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-chlorophenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-chlorophenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide; and

N-[1-(4-trifluoromethylphenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

30 16. A compound according to claim 1, which is selected from the group consisting of

N-[1-(3-trifluoromethylphenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-methylphenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

5 N-[1-(3-methylphenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-fluorophenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

10 N-[1-(3-fluorophenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-methoxyphenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-methoxyphenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

15 N-[1-(4-chlorophenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide; and

N-[1-(3-chlorophenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

20 17. A compound according to claim 1, which is selected from the group consisting of

N-[1-(4-trifluoromethylphenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

25 N-[1-(3-trifluoromethylphenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-bromophenyl)methyl]-N-methyl(2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-methylphenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-fluorophenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

30 N-[1-(2-methoxyphenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-chlorophenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-trifluoromethylphenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-methylphenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide; and  
N-[1-(2-fluorophenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

18. A compound according to claim 1, which is selected from the group consisting

5 of

N-[1-(2-methoxyphenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-chlorophenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-trifluoromethylphenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-  
yl)carboxamide;

10 N-[1-(2,4-dichlorophenyl)ethyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-methylphenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-methylphenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-fluorophenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-fluorophenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

15 N-[1-(4-methoxyphenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;  
and

N-[1-(3-methoxyphenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

19. A compound according to claim 1, which is selected from a group consisting of

20 N-[1-(4-chlorophenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-chlorophenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-trifluoromethylphenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-  
yl)carboxamide;

N-[1-(3-trifluoromethylphenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-  
25 yl)carboxamide; and

N-[1-(4-bromophenyl)methyl](2-phenylpyridino[2,3-b]pyridin-4-yl)carboxamide.

20. A compound according to claim 1, which is selected from the group consisting  
of:

30 N-[1-(phenyl)ethyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(phenyl)butyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(phenyl)pentyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(phenyl)hexyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(diphenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(1,2-diphenyl)ethyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(1-phenyl-2-cyclohexyl)ethyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-indanyl-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(phenyl)isobutyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(phenyl)2-methylbutyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

1-isobutyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone; and

1-(2-methylphenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone.

21. A compound according to claim 1, which is selected from the group consisting of

1-(2-chlorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-methyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-propyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-butyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-cyclopentyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-pentyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-benzyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-cyclohexylmethyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-isopropyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone; and

N-[1-(phenyl)octyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide.

22. A compound according to claim 1, which is selected from the group consisting of

1-(2-methylbutyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

N-[1,3-(diphenyl)propyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1,4-(diphenyl)butyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

- N-benzyl-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-benzyl-N-ethyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-benzyl-N-isopropyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-benzyl-N-butyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 5 N-benzyl-N-isobutyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-benzyl-N-cyclopentyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide; and  
 N-benzyl-N-pentyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide.

23. A compound according to claim 1, which is selected from the group consisting  
 10 of  
 N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(phenylcyclopentyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-  
 yl)carboxamide;  
 N-[1-(phenylcyclohexyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-  
 15 yl)carboxamide;  
 N-[1-(1-phenyl-2cyclopentyl)ethyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-  
 yl)carboxamide;  
 N-[1-(1,3-diphenyl)propyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(1,4-diphenyl)butyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 20 1-phenyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;  
 1-cyclohexyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;  
 1-cyclopentylmethyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-  
 yl)ketone; and  
 1-hexyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone.

24. A compound according to claim 1, which is selected from the group consisting  
 of  
 1-(2-fluorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-  
 yl)ketone;  
 30 1-(3-methylphenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-  
 yl)ketone;  
 1-(4-methylphenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-  
 yl)ketone;

1-(4-fluorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-cycloheptyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-(3-chlorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

1-(4-chlorophenyl)(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

6,7-dimethoxy(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

6,7-dimethoxy-1-methyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone;

6,7-dimethoxy-1-phenyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone; and

6,7-dimethoxy-3-methyl(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)ketone.

25. A compound according to claim 1, which is selected from the group consisting of

2-[6,7-dimethoxy-2-(2-1,2,3,4-tetrahydroisoquinolyl)(2-phenylpyridino[4,3-b]pyridin-4-yl)]ethanenitrile ketone;

N-[1-(4-bromophenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-methylphenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-methylphenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-fluorophenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-fluorophenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-methoxyphenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-methoxyphenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-chlorophenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide; and

N-[1-(3-chlorophenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide.

26. A compound according to claim 1, which is selected from the group consisting of

N-[1-(4-trifluoromethylphenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-trifluoromethylphenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-methylphenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(3-methylphenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(4-fluorophenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(3-fluorophenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 5 N-[1-(4-methoxyphenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(3-methoxyphenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 N-[1-(4-chlorophenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
 and  
 N-[1-(3-chlorophenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide.

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27. A compound according to claim 1, which is selected from the group consisting of

N-[1-(4-trifluoromethylphenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

15 N-[1-(3-trifluoromethylphenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-bromophenyl)methyl]-N-methyl(2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-methylphenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-fluorophenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

20 N-[1-(2-methoxyphenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-chlorophenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-trifluoromethylphenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-methylphenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide; and

N-[1-(2-fluorophenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide.

25

28. A compound according to claim 1, which is selected from the group consisting of

N-[1-(2-methoxyphenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(2-chlorophenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

30 N-[1-(2-trifluoromethylphenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(2,4-dichlorophenyl)ethyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(4-methylphenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

N-[1-(3-methylphenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;

- N-[1-(4-fluorophenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
N-[1-(3-fluorophenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
N-[1-(4-methoxyphenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
N-[1-(3-methoxyphenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide; and  
5 N-[1-(4-chlorophenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide.

29. A compound according to claim 1, which is selected from the group consisting of

- N-[1-(3-chlorophenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
10 N-[1-(4-trifluoromethylphenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
N-[1-(3-trifluoromethylphenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
N-[1-(4-bromophenyl)methyl](2-phenylpyridino[4,3-b]pyridin-4-yl)carboxamide;  
4-ethyl-4-phenyl-2-(2-phenylpyridino[2,3-b]pyridin-4-yl) imidazoline;  
4-isobutyl-4-phenyl-2-(2-phenylpyridino[2,3-b]pyridin-4-yl) imidazoline;  
15 4-ethyl-4-phenyl-2-(2-phenylpyridino[4,3-b]pyridin-4-yl) imidazoline; and  
4-isobutyl-4-phenyl-2-(2-phenylpyridino[4,3-b]pyridin-4-yl) imidazoline.

30. All stereoisomeric forms of a compound according to claim 1 and mixtures thereof.

20

31. A compound according to claim 1 for use in therapeutic treatment of a disease or disorder associated with pathogenic neurokinin-3 receptor activation.

32. A pharmaceutical composition comprising a compound as claimed in any one  
25 of claims 1 through 8 combined with at least one pharmaceutically acceptable carrier or excipient.

33. A method for the treatment or prevention of a disease or disorder associated with pathogenic neurokinin-3 receptor activation, said method comprising administering to a  
30 patient in need of such treatment or prevention an effective amount of a compound of claim 1.



34. The use of a compound as claimed in any one of claims 1 through 8 for the manufacture of a medicament for the treatment or prevention of a disease or disorder associated with pathogenic neurokinin-3 receptor activation.

5           35. The use of a compound as described in claims 1 through 8 for the manufacture of a medicament for the treatment or prevention of anxiety, depression, obesity, or pain.

36. A method according to claim 33 for the treatment or prevention of anxiety or depression.

10           37. A method according to claim 33 for the treatment of pain.

38. A method according to claim 33 for the treatment of obesity.

15           39. A method according to claim 33 for the treatment of chronic pulmonary obstructive disorder.

40. A method for localizing neurokinin-3 receptors in a tissue sample comprising:  
contacting with the sample a detectably-labeled compound of claim 1 under conditions that  
20 permit binding of the compound to neurokinin 3 receptors, washing the sample to remove unbound compound, and detecting the bound compound.

41. A method of inhibiting the binding of a neurokinin to a neurokinin 3 receptor, said method comprising contacting a compound of claim 1 with cells expressing such a receptor in  
25 the presence of a neurokinin, wherein the compound is present at a concentration sufficient to inhibit neurokinin binding to cells expressing a cloned human NK-3 receptor *in vitro*.

42. A method for altering the signal-transducing activity of neurokinin-3 receptors, said method comprising exposing cells expressing such receptors to a compound according to  
30 claim 1 at a concentration sufficient to inhibit neurokinin binding to cells expressing a cloned human neurokinin-3 receptor *in vitro*.

43. A packaged pharmaceutical composition comprising the pharmaceutical composition of Claim 32 in a container and instructions for using the composition to treat a patient suffering from a disorder responsive to neurokinin-3 receptor antagonism.

5           44. The packaged pharmaceutical composition of claim 43, wherein said patient is suffering from anxiety, depression, schizophrenia, obesity or chronic pulmonary obstructive disorder.

10           45. A compound according to claim 1 wherein in an assay of neurokinin-3 receptor binding the compound exhibits an  $IC_{50}$  of 1 micromolar or less.